

Work Order ID 156095

Thursday, January 26, 2017 10:35:57 AM

156095

Page 1

Item ID: D3183-5 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Bearing
Start Date: 1/31/2017 Start Qty: 25.00 ***25*** Cust Item ID:
Required Date: 2/14/2017 Req'd Qty: 25.00 ***25*** Customer:
Reference:

Approvals: Process Plan: DAS 21 9-89 Date: JAN 26 2017 Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3183	Rev C1								
100	PURCHASING	0.00							
100									
Purchasing	Memo	0.00							
Purchasing	Issue P/O: <u>35132</u> Bearing as per Dwg D3183Single row, deep groove, Conrad type, shieldedPossible Supplier: NSK P/N 6800ZZCertificate of conformity note is required								
110	Receive & Inspect for Damage & Mat'l Certs	0.00							
110									
Packaging	Memo	0.08							
Packaging	Ensure certificate of conformity is attached								
120	QC6- Inspect dimensions to drawing	0.00							
120									
QC	Memo	0.00							
Quality Control									

25 JAN 30 2017 DAS 13 9-89

25 FEB 01 2017 DAS 6 9-89

25 FEB 01 2017 DAS 38 9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐					
		OTHER : _____							

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Page 2

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Identify as per dwg & Stock Location: <u>Store</u>	0.00							
130									
Packaging	Memo	0.04				25		DAS 6 9-89	FFR 01 2017
Packaging									
140	QC21- Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.42							17/02/02
Quality Control									

 FEB 02 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
				Completed By					
				Lead hand / Supervisor Approval Verification					
				QC / QA Coordinator Approval					

Root Cause				FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____							
Misidentified	☐	Past Due	☐								

Picklist Print

Thursday, January 26, 2017 10:36:01 AM

Page 1

Work Order ID: 156095

156095

Parent Item: D3183-5

D3183-5

Parent Item Name: Bearing

Start Date: 1/31/2017

Required Date: 2/14/2017

Start Qty: 25.00

Required Qty: 25.00

Comments: IPP: A03.03.27New issueKJ/RF

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
6800ZZ *680077* Bearing		Purchased	No			100	Each	0.0000	1 **	25		FEB 01 2017 FEB 01 2017 FEB 01 2017	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

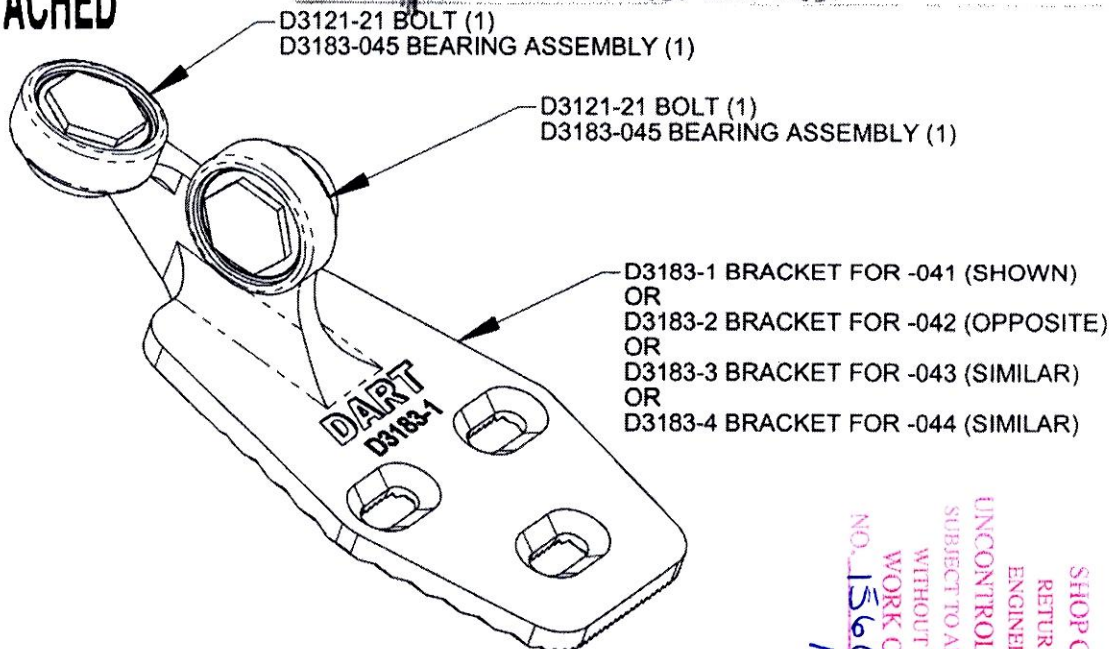
Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					



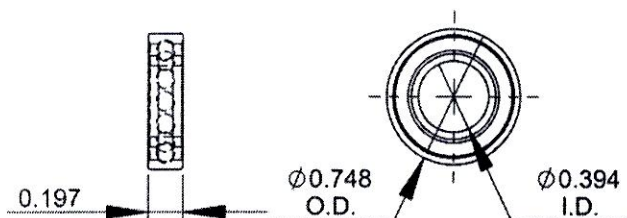
DESIGN #	DRAWN BY CP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D3183	REV. C SHEET 1 OF 4
DATE 04.02.17		TITLE BRACKET ASSEMBLY	SCALE 1:1
A	03.01.24	NEW ISSUE	
B	03.06.17	REMOVE BEARING; 1.012 WS 0.882	
C	04.02.17	ADD -045/-9; 0.182 WAS 0.431	
C1	04.11.09	0-830 WAS 0-850	

RELEASED
04 03 01
DEO ATTACHED



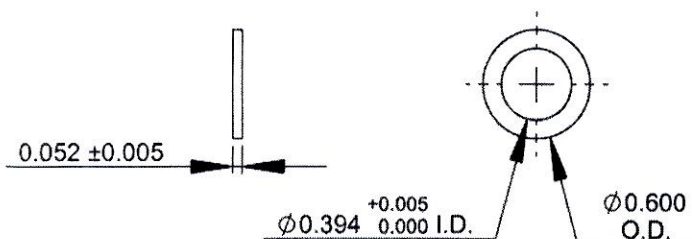
D3183-041 BRACKET ASSEMBLY (SHOWN)
D3183-042 BRACKET ASSEMBLY (OPPOSITE)
D3183-043 BRACKET ASSEMBLY (SIMILAR)
D3183-044 BRACKET ASSEMBLY (SIMILAR)

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 156095 MJS
17-01-26



D3183-5 BEARING: SPECIFICATION CONTROL DRAWING

- 1) SINGLE ROW, DEEP GROOVE, CONRAD TYPE, SHIELDED
- 2) POSSIBLE SUPPLIER: NSK P/N 6800ZZ
- 3) ALL DIMENSIONS ARE IN INCHES



D3183-7 WASHER

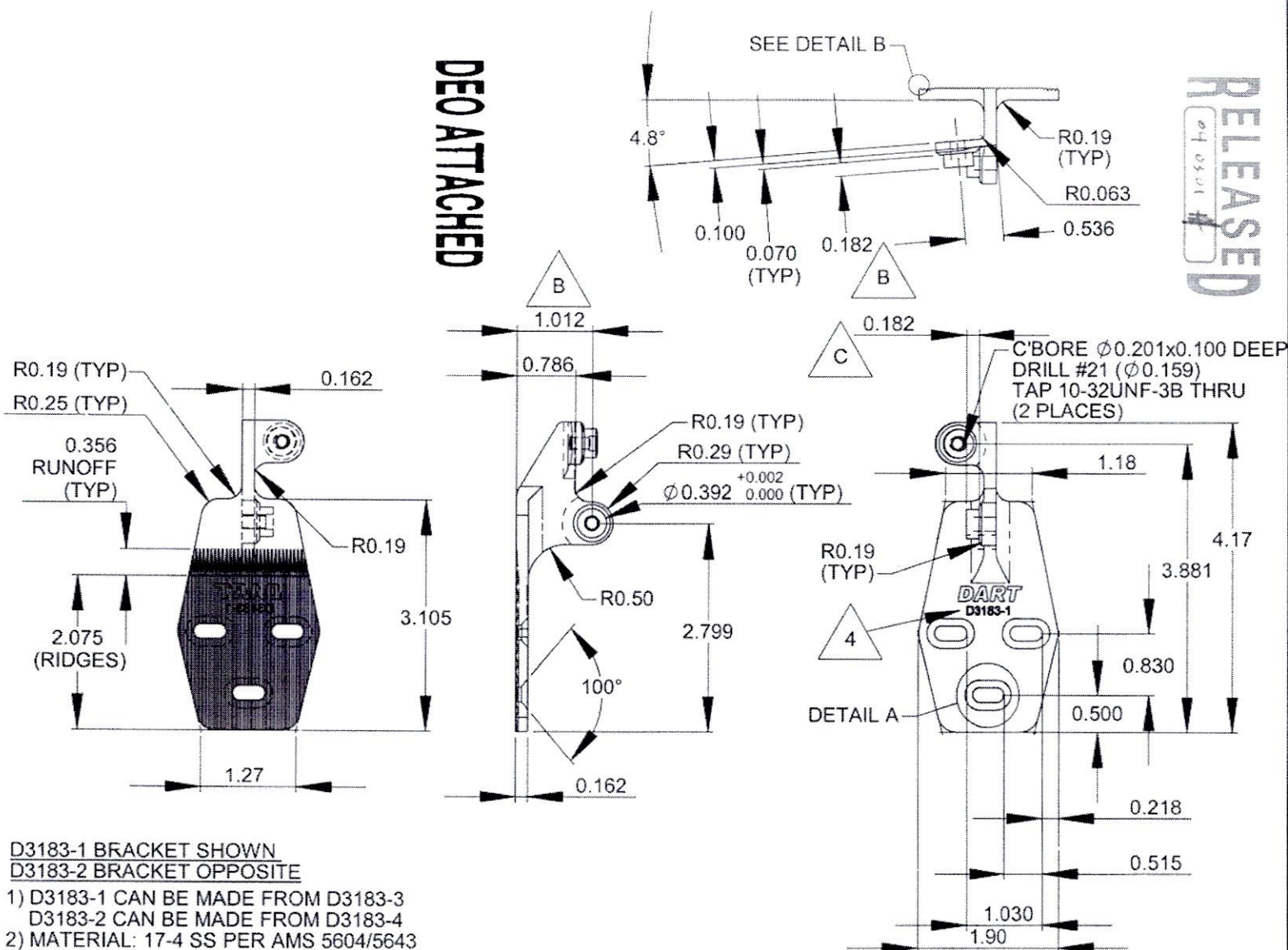
- 1) MATERIAL: AISI 303 ROUND BAR (M303R) ANNEALED
- 2) BREAK ALL SHARP EDGES 0.005 TO 0.010
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES

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DART

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO. D3183	REV. C
DATE 04.02.17	TITLE BRACKET ASSEMBLY	SHEET 2 OF 4	
	SCALE 1:2		

RELEASED**DEO ATTACHED**

**D3183-1 BRACKET SHOWN
D3183-2 BRACKET OPPOSITE**

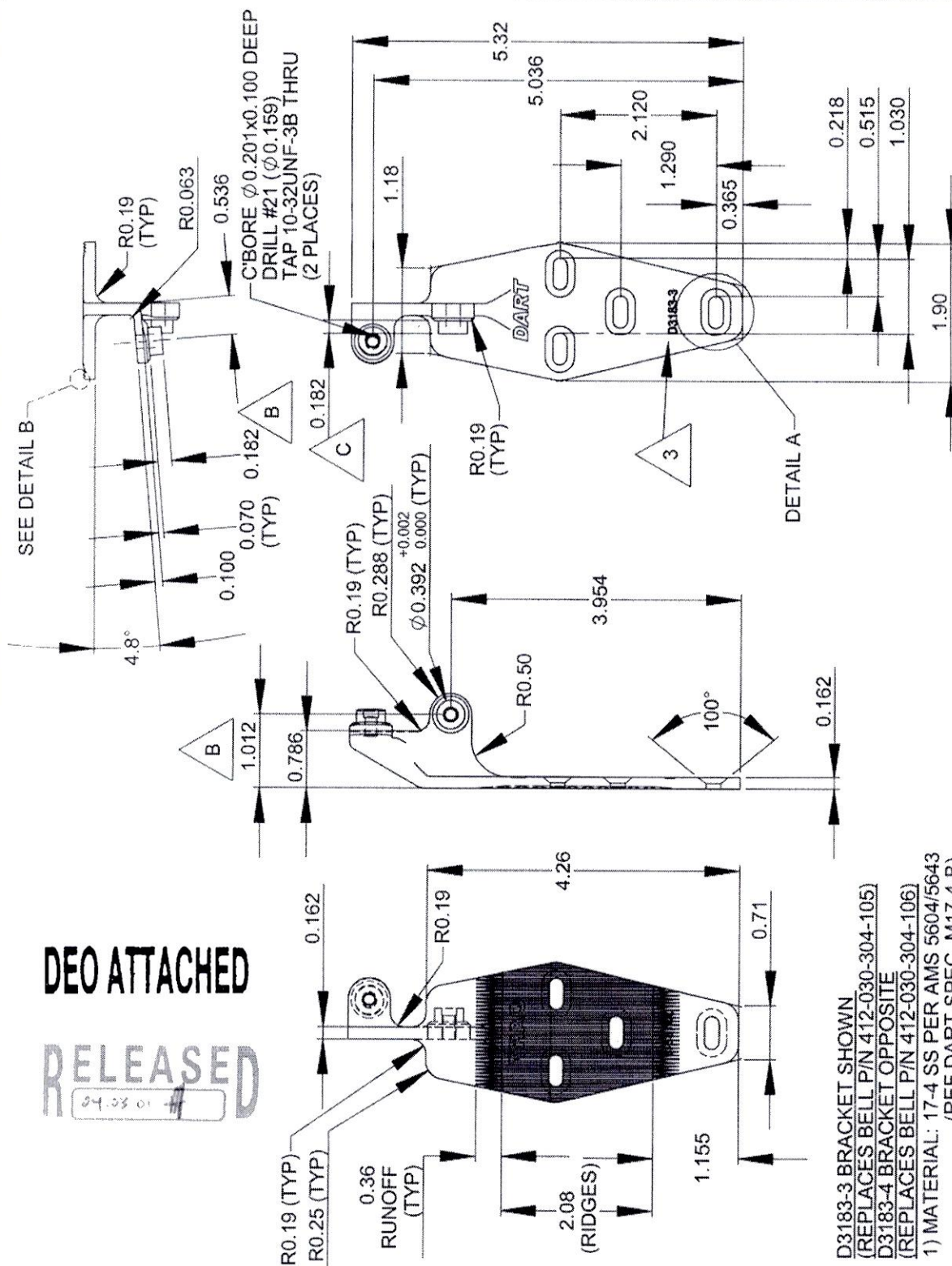
- 1) D3183-1 CAN BE MADE FROM D3183-3
D3183-2 CAN BE MADE FROM D3183-4
- 2) MATERIAL: 17-4 SS PER AMS 5604/5643
(REF DART SPEC. M17-4-B)
MIN ULTIMATE STRENGTH = 150 ksi
MIN YIELD STRENGTH = 100 ksi
- 3) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 4) ENGRAVE DART P/N & LOGO AS SHOWN
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 6) ALL DIMENSIONS ARE IN INCHES

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DESIGN 	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	DRAWING NO. D3183	REV. C SHEET 3 OF 4
DATE 04.02.17		TITLE BRACKET ASSEMBLY SCALE 1:2	



D3183-3 BRACKET SHOWN
(REPLACES BELL P/N 412-030-304-105)
D3183-4 BRACKET OPPOSITE
(REPLACES BELL P/N 412-030-304-106)

1) MATERIAL: 17-4 SS PER AMS 5604/5643

1) MATERIAL: 17-4 SS PER AMS 3604/3043
(REF DART SPEC. M17-4-B)

(NET DRY WT LOSS: 0.0174%)
MIN ULTIMATE STRENGTH = 1500

MIN YIELD STRENGTH = 100 ksi

2) BREAK ALL SHARP EDGES 0.005 TO 0.015

3) ENGRAVE DART P/N & LOGO AS SHOWN

4) TOLERANCES ARE PER DART QSI018 UNLESS OTHERWISE NOTED

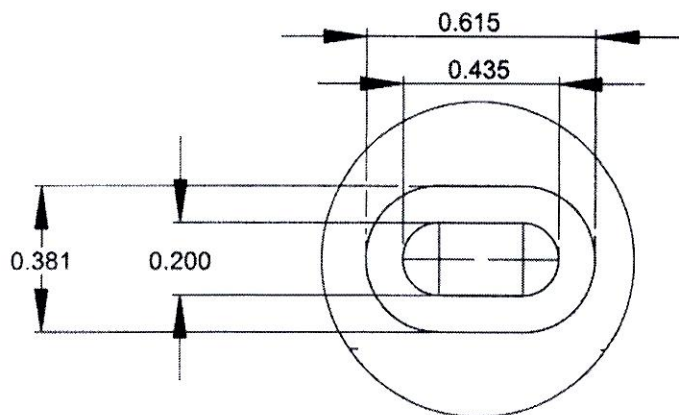
5) ALL DIMENSIONS ARE IN INCHES

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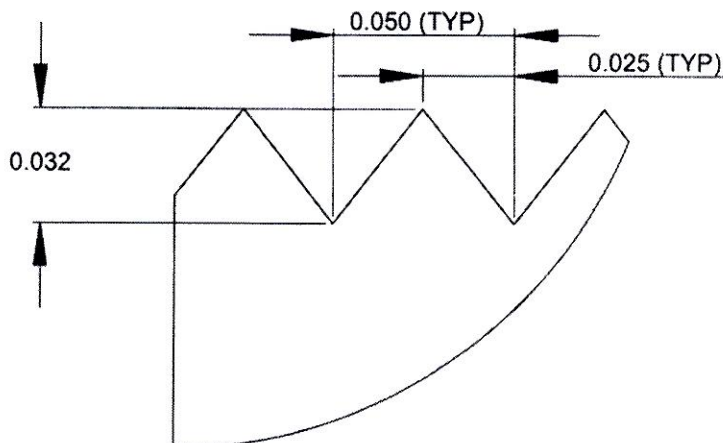
DESIGN #	DRAWN BY CP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D3183	REV. C SHEET 4 OF 4
DATE 04.02.17	TITLE BRACKET ASSEMBLY		SCALE 1:1



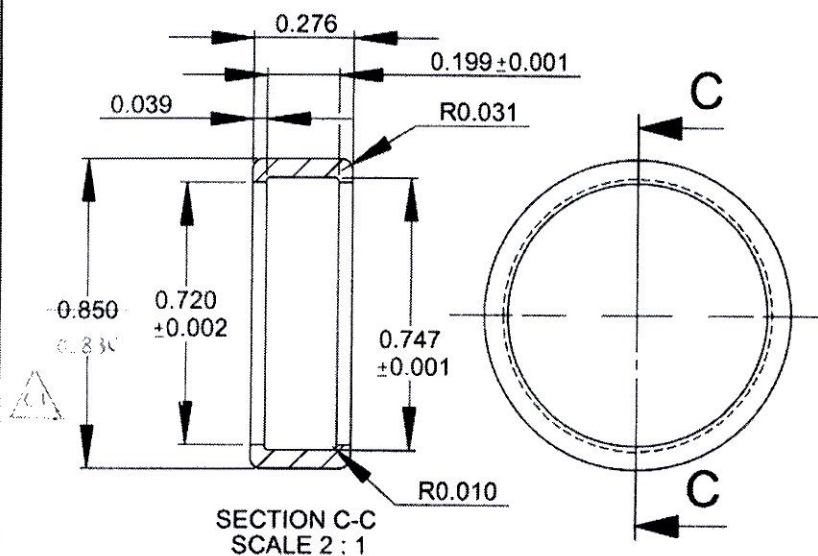
DETAIL A (2 : 1)

RELEASED
04.03.01

DEO ATTACHED



DETAIL B (20 : 1)



D3183-9 CAP

- 1) MATERIAL: DELRIN ROD, Ø1.00
(REF DART SPEC. M-DELRIN-R1.00)
- 2) TOLERANCES ARE PER DART QSI 018
UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES

D3183-045 BEARING ASSEMBLY

- 1) ASSEMBLE D3183-5 BEARING AND
D3183-9 CAP

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Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO35132**

Purchase Order Date 1/30/2017

PO Print Date 1/30/2017

Page Number 1 of 2

Order From :

VC-MAI001

MAIN INDUSTRIAL SALES LTD.
1475, TESSIER
HAWKESBURY, ON K6A 3S6
CA

Ship To : DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

JAN 30 2017

Contact Name

Vendor Phone 613 632 3595

Ship To Contact

Ship To Phone

Ship Via: Yours ppd

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax # 10127-2607

Terms

Net 30

Currency

CAD

FOB

FCA - (Free Carrier)

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
1	6900ZZ AS PER DWG D3221 REV. E B156096	Bearing	1/31/2017 Yes 1/31/2017		25.00 Each	\$1.62	\$40.50
Line Total:							\$40.50
2	6800ZZ AS PER DWG D3183 REV. C B156095	Bearing	1/31/2017 Yes 1/31/2017		25.00 Each	\$1.48	\$37.00
Line Total:							\$37.00

DAS
38
7-89

DAS
6
7-89

FEB 01 2017

Note:

1/30/2017

MAIN INDUSTRIAL SALES LTD.

1475 TESSIER ST.
HAWKESBURY ON K6A 3S6
Phone: (613) 632-3595 Ext. Fax: (613) 632-0262
sales@mainindustrialsales.com

Packing Slip

DATE January 30, 2017
NUMBER 0000202976
CUSTOMER NO. DART

BILL TO:

DART AEROSPACE LTD.
1270 ABERDEEN ST.
HAWKESBURY ON K6A 1K7

SHIP TO:

DART AEROSPACE LTD.
1270 ABERDEEN ST.
HAWKESBURY ON K6A 1K7

(613) 632-5200 Ext.

(613) 632-5200 Ext.

P.O. NUMBER	SALESPERSON	ORDER DATE	REQ. DATE	ORDER NUMBER			
35132	EB	30-Jan-17		0000202976			
F.O.B.	SHIP VIA	TERMS					
F.O.B. value	OUR TRUCK / LOCAL	NET 30 DAYS					
PART NUMBER	DESCRIPTION	LOCATION	UOM	QUANTITY	REQ.	SHIPPED	B.O.
0-69002ZKML	KML BALL BEARING	6D6	EA	25	25		
YOUR PART #: 6900ZZ							
0-68002ZKML	BALL BEARING	6D6	EA	25	25		
YOUR PART #: 6800ZZ							

FEB 01 2017

CERTIFICATE OF COMPLIANCE

RE: 6800-ZZ BEARING

To Whom It May Concern:

Our bearing rings and balls are made of high carbon chromium steel GCr15 which has a chemical composition equivalent to SAE 52100. The hardness of bearing rings is HRC 59-64 and HRC 60-65 for steel balls. Unless specify, bearings are 25-30% filled with Alvania No. 2 grease or Chevron SRI#2 grease or equivalent.

Stella Fan
Phone: 905-629-4255
Fax: 905-629-2358

